AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) An electronic driving device ~~(20)~~ for turning on and off a synchronous pump comprising a synchronous electric motor ~~(1)~~ with a permanent-magnet rotor ~~(8)~~, comprising:

- at least a static power switch ~~(17)~~ inserted in series between the motor ~~(1)~~ and an AC electric power supply source ~~(Vp)~~; and

- a processing unit ~~(16)~~ having at least an input receiving a synchronism signal (V) and a control output connected to said switch ~~(17)~~;

- ~~characterised in that~~ wherein [[it]] the electronic driving device is enabled by a signal emitted by a float level sensor ~~(40)~~ and includes an input receiving a signal (α) by a position sensor ~~(21)~~ detecting the rotor ~~(8)~~ polarity and position;

- wherein the pump turn-on and off ~~being~~ is regulated according to the signal emitted by said level sensor ~~(40)~~ and to a measured difference between a critical load angle (δ) and a current load angle computed during different working conditions of the pump.

2. (Currently amended) [[A]] The device according to claim 1, ~~characterised in that~~ wherein said position sensor ~~(21)~~ is a Hall-effect sensor.

3. (Currently amended) [[A]] The device according to claim 1, ~~characterised in that~~ wherein the motor comprises rotor poles ~~(N, S)~~ divided by an ideal plane ~~(9)~~ whose rest position is orthogonal to the position of said position sensor ~~(21)~~.

4. (Currently amended) [[A]] The device according to claim 1, ~~characterised in that~~ wherein said float level sensor ~~(40)~~ comprises a Hall probe ~~(37)~~.

5. (Currently amended) [[A]] The device according to claim 1, ~~characterised in that~~ wherein the float ~~(36)~~ of said level sensor ~~(40)~~ is incorporated in an envelope ~~(31)~~, externally associated with the body ~~(25)~~ of the pump ~~(15)~~ and the sensor element ~~(37)~~ of said level sensor ~~(40)~~ is housed in the pump body ~~(25)~~ in correspondence with said float ~~(36)~~.

6. (Currently amended) [[A]] The device according to claim 5, ~~characterised in that~~ wherein said float ~~(36)~~ is equipped in its lower part with a permanent magnet ~~(29)~~.

7. (Currently amended) [[A]] The device according to claim 1, ~~characterised in that~~ wherein said pump ~~(15)~~ is an immersion pump.

8. (Currently amended) [[A]] The device according to claim 1, ~~characterised in that~~ wherein said electronic device ~~(20)~~ is housed on an electronic board ~~(38)~~ positioned inside the pump body ~~(25)~~ in a position just underlying the float level sensor ~~(40~~.

9. (Currently amended) [[A]] The device according to claim 1, ~~characterised in that~~ wherein said phase displacement is indirectly measured in said unit ~~(16)~~ by detecting the rotor inductance, by means of said sensor ~~(21)~~, being complementary to the back electromotive force.

10. (Currently amended) [[A]] The device according to claim 1, wherein the pump is immediately turned off if the value of a counter (T2) is greater than [[e]] a predetermined time limit (Te) defined for an emergency stop.

11. (Currently amended) [[A]] The device according to claim 1, wherein said critical load angle (δ) is a mean value among N sampled values.

12. (Currently amended) [[A]] The device according to claim 1, ~~characterized by~~ further comprising a first time counter (T1) that is incremented every time instant[[s]] wherein

the float level sensor is low and the pump is off to check the inactivity time period of the pump and turn it on for a predetermined short time period.